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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/769,881	01/25/2001	Michael M. Kearney	2402-4283.1US	5490

7590 04/08/2003
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EXAMINER	
CINTINS, IVARS C	
ART UNIT	PAPER NUMBER

1724

DATE MAILED: 04/08/2003 //

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/769,881

Applicant(s)
Kearney et al.

Examiner
Ivars Cintins

Art Unit
1724



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jan 28, 2003
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is again rejected under 35 U.S.C. 102(b) as being anticipated by Gelman et al. (U.S. Patent No. 4,025,438) or Grosshandler (U.S. Patent No. 4,059,528). As pointed out in the previous Office Action, each of the references discloses a system comprising a distributor, a bed of processing material, and a collector, wherein the bed of processing material has a diameter greater than its height. Each of these reference systems also includes distributor and collector elements having a shape which exhibits "scale invariance" (see Figs. 2 and 3 of Gelman et al.; and Fig. 1 of Grosshandler); and therefore, these elements are deemed to constitute "structure comprising fractal elements" as required by claim 1.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the

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prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-15 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Gelman et al. or Grosshandler. As pointed out in the previous Office Action, each of the references discloses the claimed invention with the exception of the ratio of diameter to height of the bed (claims 2 and 10), the density of distribution exits (claims 3, 4 and 7-15), the pressure drop across the bed (claims 5 and 11), the amount of treatment units employed (claims 6 and 12), and the shape of the fractal elements employed (claim 15). However, the exact ratio of diameter to height of the bed, the exact density of distribution exits, the exact pressure drop across the bed, and the exact shape of the fractal elements employed are not seen to materially affect the overall operation of either reference device, or to produce any new and unexpected result; and are therefore deemed to be obvious matters of choice in design, insufficient to patentably distinguish the claims. Also, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ a plurality of treatments units in the system of either Gelman et al. or Grosshandler, in order to increase the treatment capacity of these reference systems.

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Applicant's arguments filed January 28, 2003 have been noted and carefully considered but are not deemed to be persuasive of patentability. Applicant argues that the reference systems do not have fractal elements as defined in paragraph 0034 of the specification. It is pointed out, however, that the distributor and collector elements of Gelman et al. retain their same basic shape at different scales, i.e. openings 18 of Fig. 3 are longer than openings 20 of Fig. 2, but they are of the same shape. Accordingly, since these elements exhibit "scale invariance," they are deemed to constitute "fractal" elements by Applicant's own definition given in the specification. Similarly, rectangular fluid passage openings 16 of Grosshandler are also deemed to be mathematical constructs which exhibit scale invariance; and therefore, the distributor and collector elements of this reference are also deemed to constitute fractal elements. Furthermore, Applicant's use of the numerals 128 and 136 to reference the distributors and collectors in the claimed system is not understood, since none of the drawings contain such reference numerals.

Applicant also argues that the density distribution recited in claims 3 and 4 is not obvious because the table of experimental results presented between paragraphs 0069 and 0070

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of the specification shows improved results. Again, this argument has been noted and carefully considered, but is not deemed to be persuasive of patentability for the above noted claims. Initially, it should be noted that this table appears to represent a comparison between a "shallow bed" and a "conventional" treatment system, and not to any difference in distributor population density. Since the beds of Gelman et al. and Grosshandler are also "shallow" type beds, these reference systems will inherently also produce similar improved results as compared to conventional treatment systems. In any event, one of ordinary skill in the fluid purification art would readily recognize that by dramatically increasing the number of distributors in a purification system, one could significantly increase the flow rate through this system. Accordingly, the exact density of distribution exits in either reference system is deemed to be an obvious matter of choice, dependent upon the desired flow rate characteristics for this system.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of


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the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to I. Cintins whose telephone number is (703) 308-3840. The examiner can normally be reached on Monday through Friday from 8:30 AM to 5:00 PM.

The fax phone numbers for this art unit are: (703) 872-9311 for "Official" faxes after Final Rejection; (703) 872-9310 for all other "Official" faxes; and (703) 872-9492 for "Draft" and other "Unofficial" faxes.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.


Ivars C. Cintins
Primary Examiner
Art Unit 1724

I. Cintins
April 6, 2003